



The Boeing Lean Journey

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The Boeing Lean Journey

- From making candy ... to learning to bunt
- Boeing and the competitive landscape
- Transforming the Boeing Production System
- Swing for the fences ... or just get on base?
- The endless journey to Lean

From making candy ...



... to learning to bunt

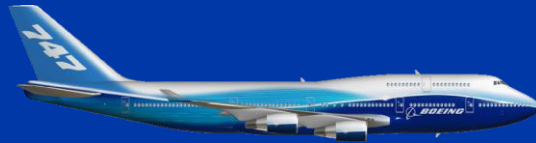


Understanding Boeing Commercial Airplanes

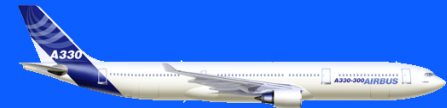
- \$33.4 billion in revenue in 2007
- 65 percent of airplane deliveries in 2007 were exports
- 3,400+ airplanes on order
 - Backlog of \$250+ billion
- 65,000 employees

The competitive landscape

**Large
400+ Seats**



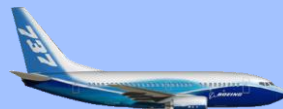
**Twin-Aisle
230-399 Seats**



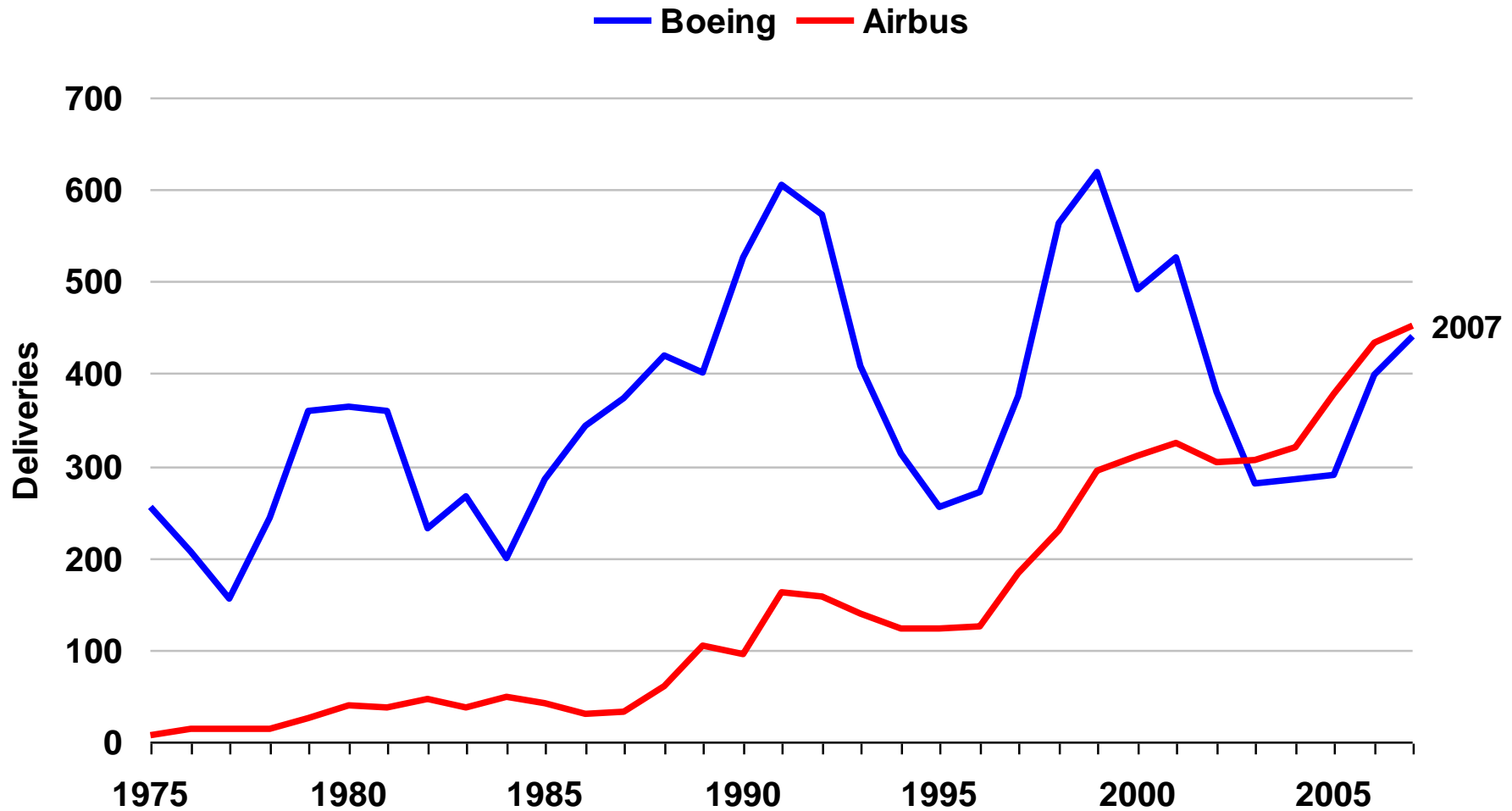
**Single-Aisle
126-200+ Seats**



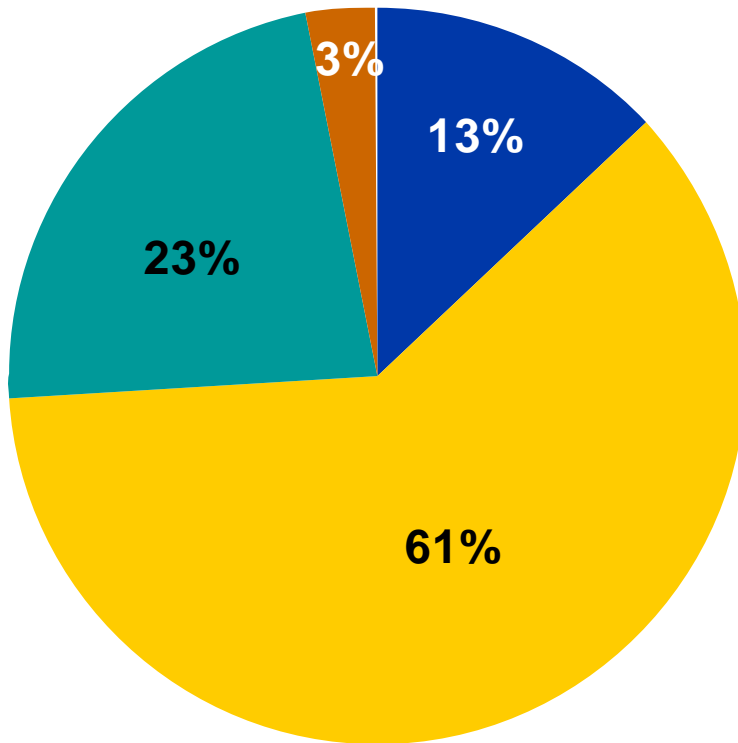
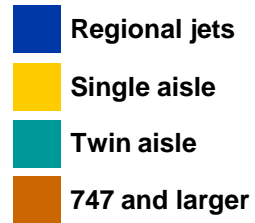
**Small
Single-Aisle
90-125 Seats**



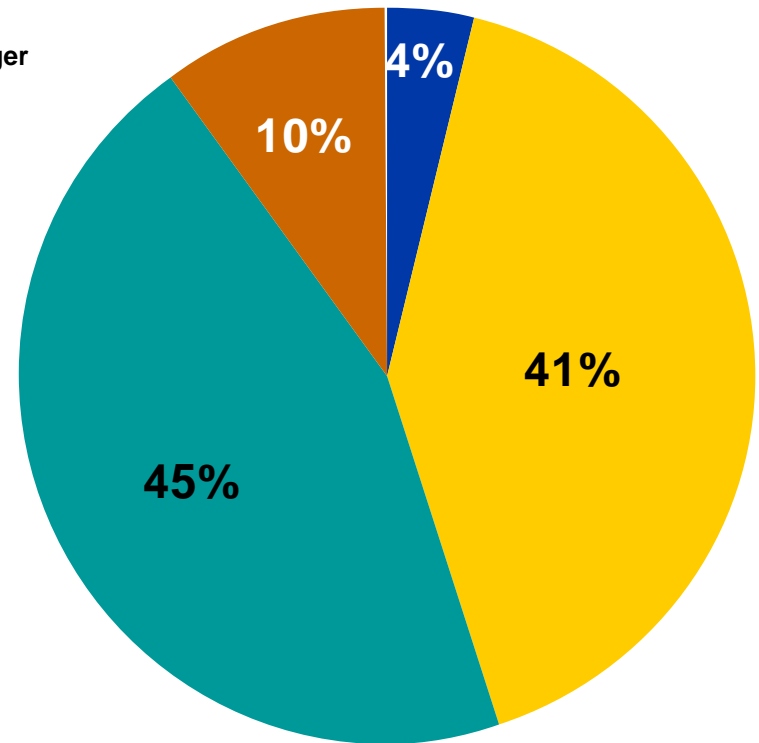
The competitive landscape



The opportunity: 2007-2026



28,600 airplanes



\$2.8 trillion
(in 2006 dollars)

737 - the world's best-selling airplane

(One takes off or lands every 4.9 seconds)



737 - the Lean journey 1991



737 - the Lean journey 2002



737 - the Lean journey 2008



737 Lean implementation progress 2001 - 2008



- **Making it flow**
- **Creating capacity**
- **Improving quality**
- **Engaging employees**

Engineering

Customer-Introduction Hours: *Reduced* by 51%

Wing Manufacturing

Flow Time: *Reduced* by 40%

Unit Hours: *Reduced* by 16%

Final Assembly

Flow Time: *Reduced* by 50%

Unit Hours: *Reduced* by 33%

Stores Inventory Turn Rate: *Increased* by 245%

Pre-Flight & Delivery

Flow Time: *Reduced* by 33%

Unit Hours: *Reduced* by 43%

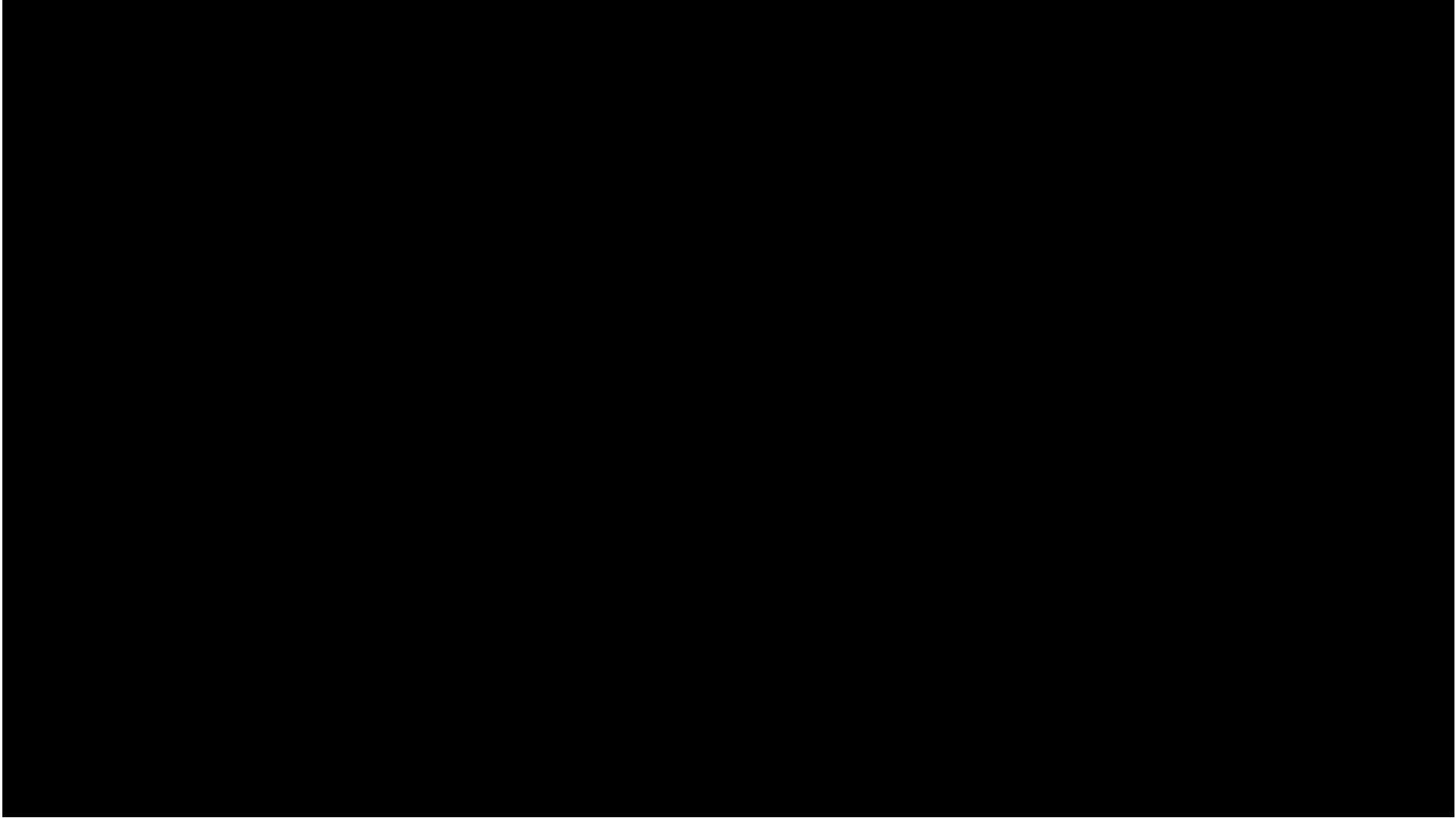
737 Program and Suppliers

Cost of Rework, Repair and Scrap: *Reduced* by 30%

Environmental Stewardship

Hazardous Waste: *Reduced* by 73%

737 “PTQ” (Put Together Quickly)



The “Move to the Lake”



777 Lean implementation progress 2005 - 2007



- *Making it flow*
- *Creating capacity*
- *Improving quality*
- *Engaging employees*

Engineering

- Customer-introduction hours *reduced 3%*

Final Assembly

- Cycle time *reduced 14%*
- Stores inventory turn-rate *increased 53%*

Factory and Suppliers

- Cost of quality *reduced 14%*

Everett Site

- 777 square footage *reduced 19%*

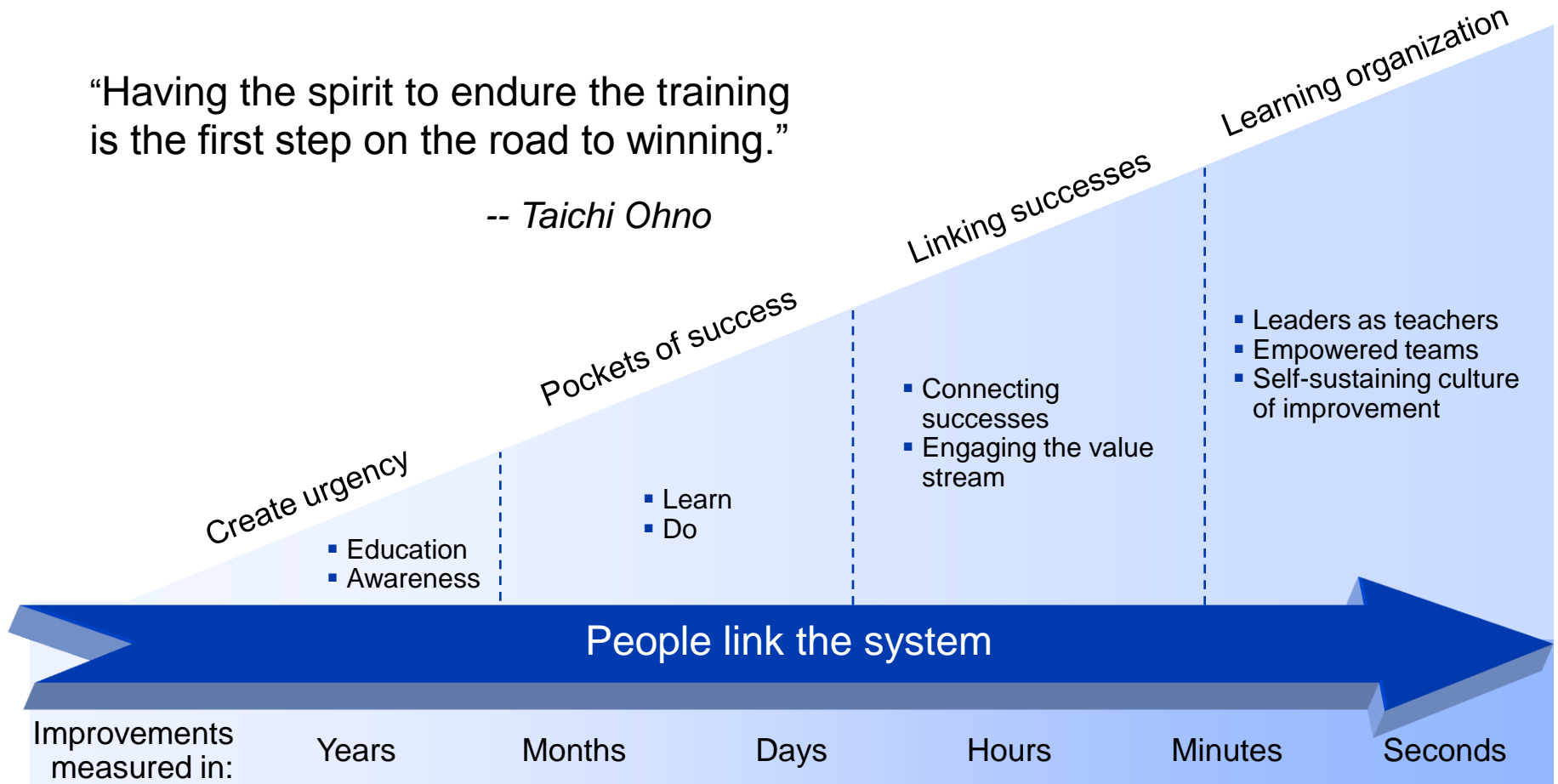
Swing for the fences ...or get on base?



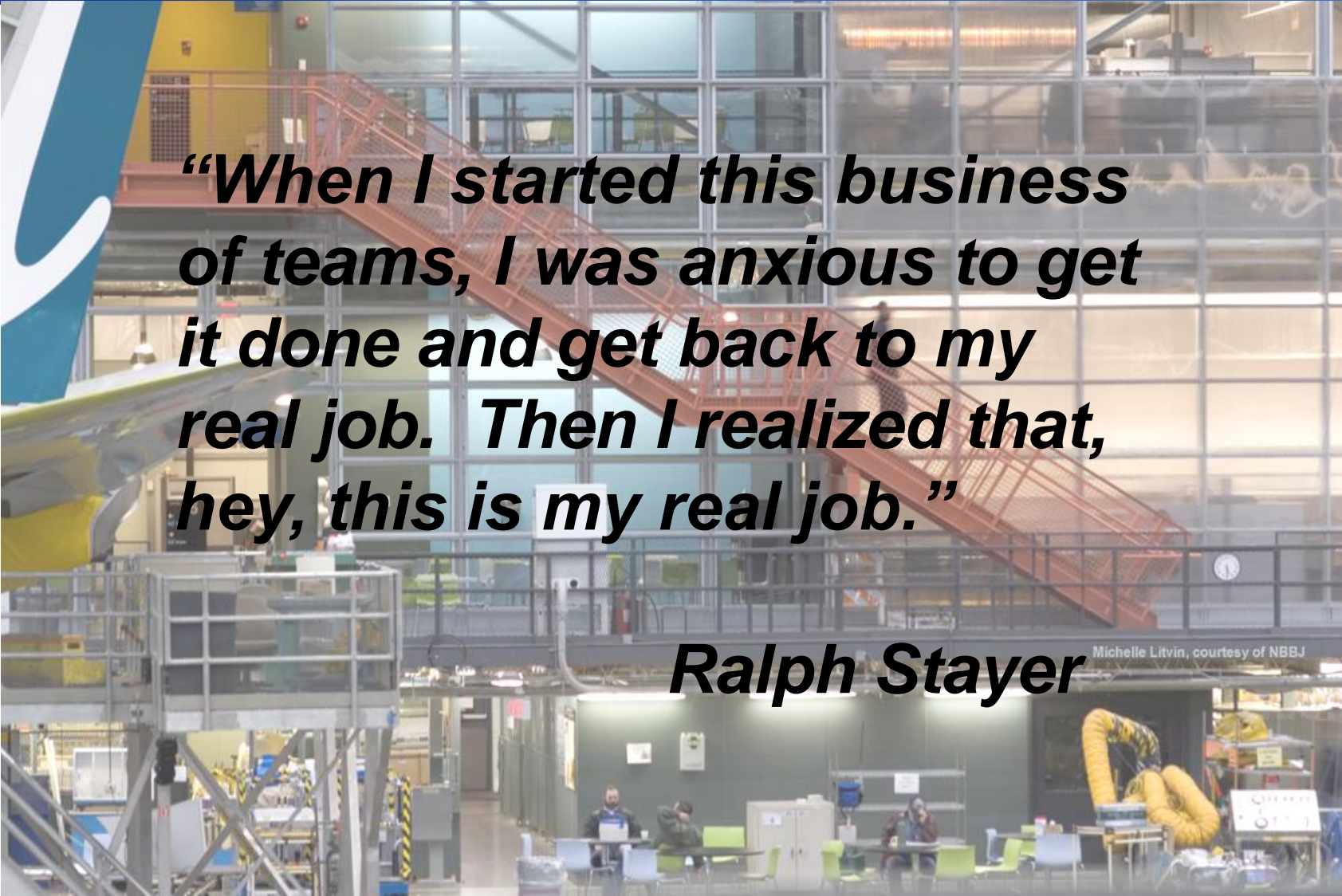
The endless journey to Lean

“Having the spirit to endure the training is the first step on the road to winning.”

-- Taichi Ohno



A parting thought

A photograph of a large industrial facility, likely an aircraft manufacturing plant. The scene is dominated by a large, multi-level structure with a prominent red staircase. In the foreground, there's a yellow robotic arm. The background shows a large glass facade and various industrial equipment. The overall atmosphere is one of a busy, modern manufacturing environment.

“When I started this business of teams, I was anxious to get it done and get back to my real job. Then I realized that, hey, this is my real job.”

Ralph Stayer

Michelle Litvin, courtesy of NBBJ

